TITLE: SYSTEM AND METHOD FOR MEASURING TRANSISTOR LEAKAGE CURRENT WITH A RING **OSCILLATOR WITH BACKBIAS CONTROLS** Inventor (s): Shingo Suzuki Attorney Docket #: TRAN-P140.CIP 1/16 BACKBIAS GENERATORS **LEAKAGE CURRENT** 95 **ESTIMATION** 170 Vnw0 ▲ Vpw0 A MEASUREMENT **TEST SIGNAL** L N 130 TEST DELAY UNIT 120 132

> TEST DIFF. AMP

PRE-CHARGE DEVICE

20

100

LEAKAGE TEST

109

DEVICE

(DUT)

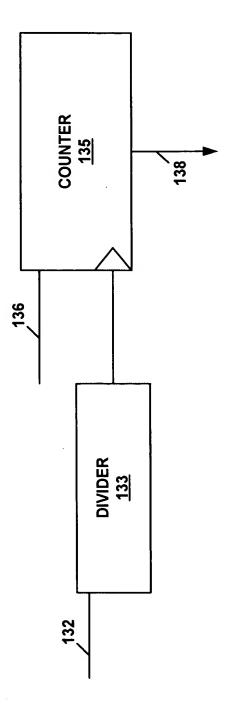
FIGURE 1

RING OSCILLATOR

8

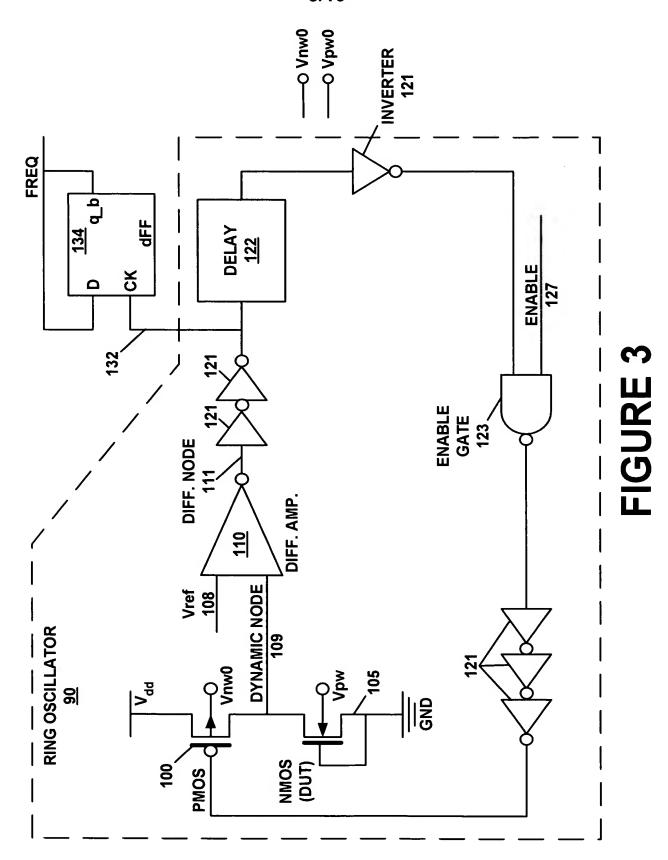
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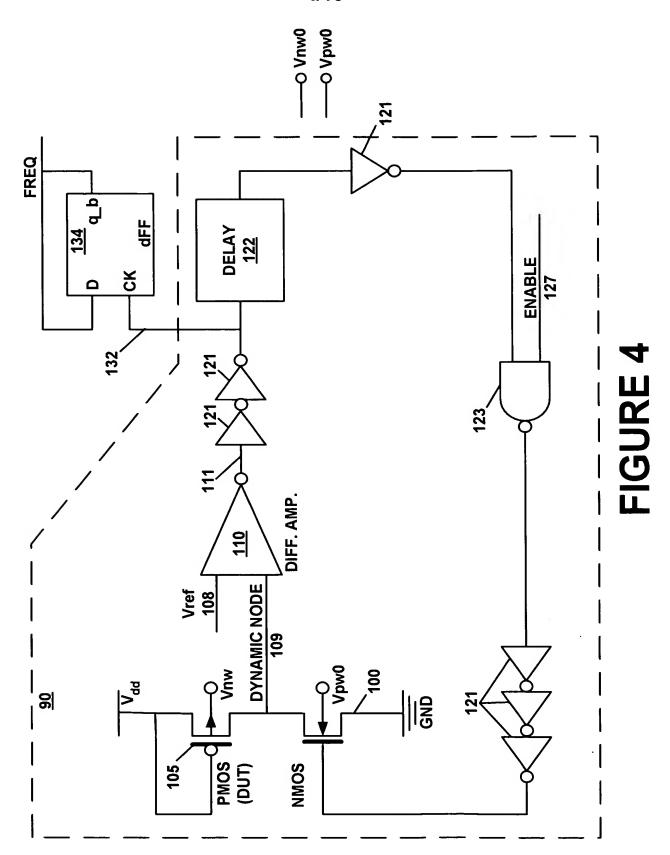


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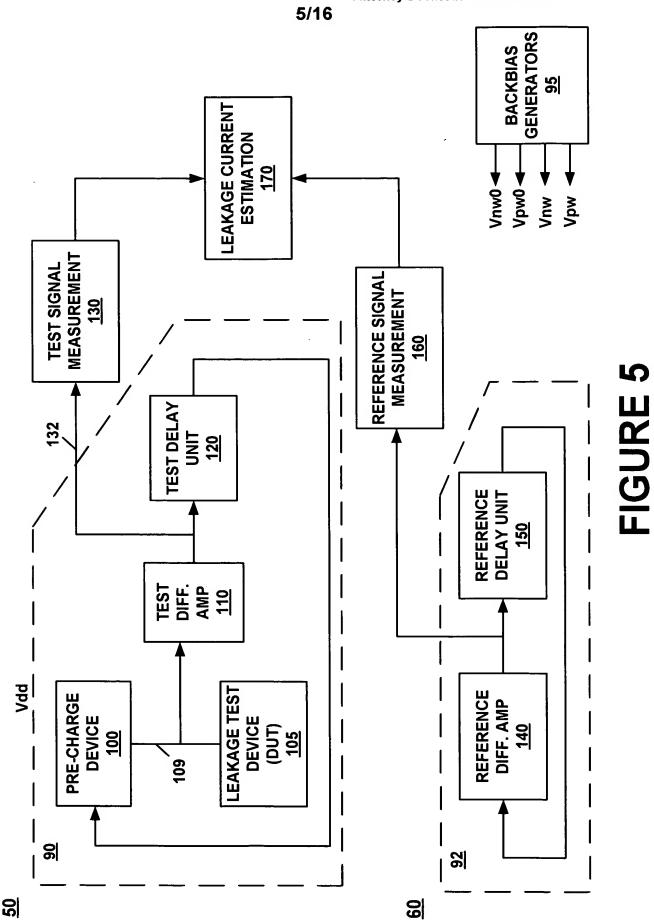




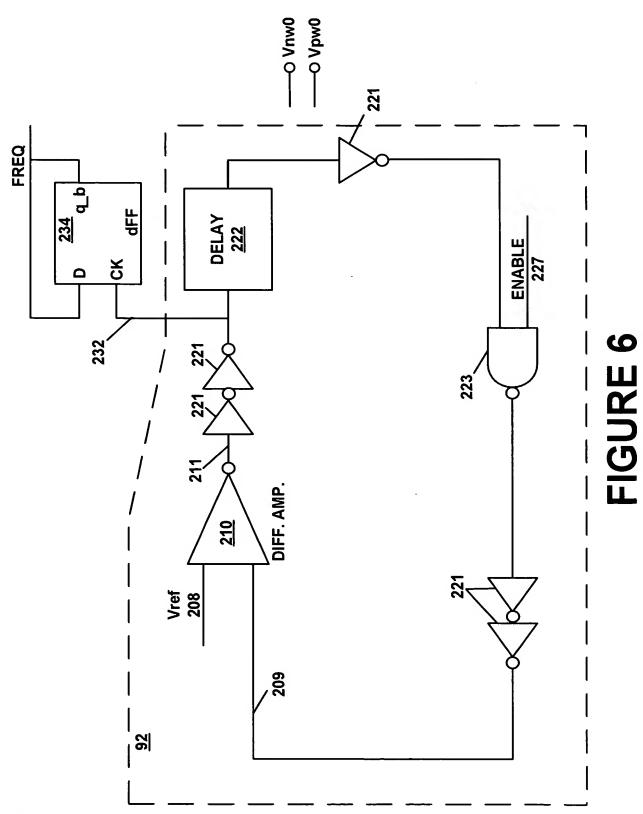
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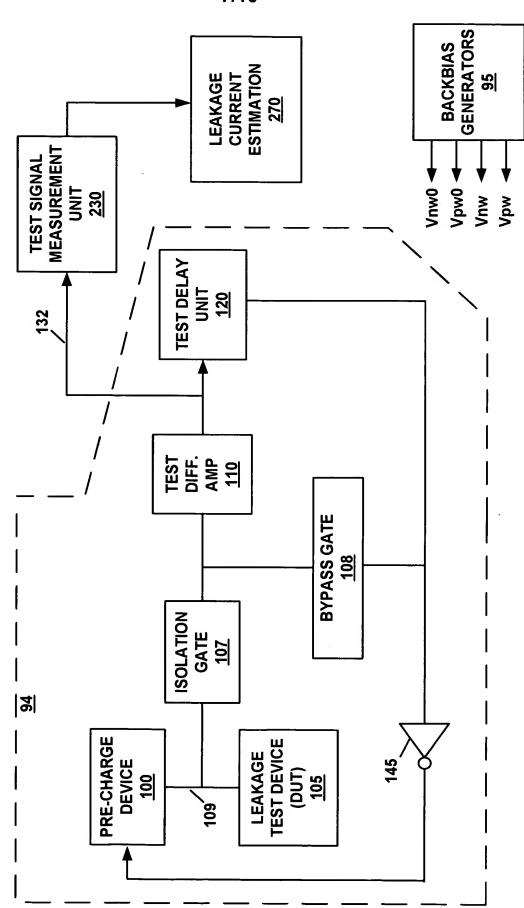
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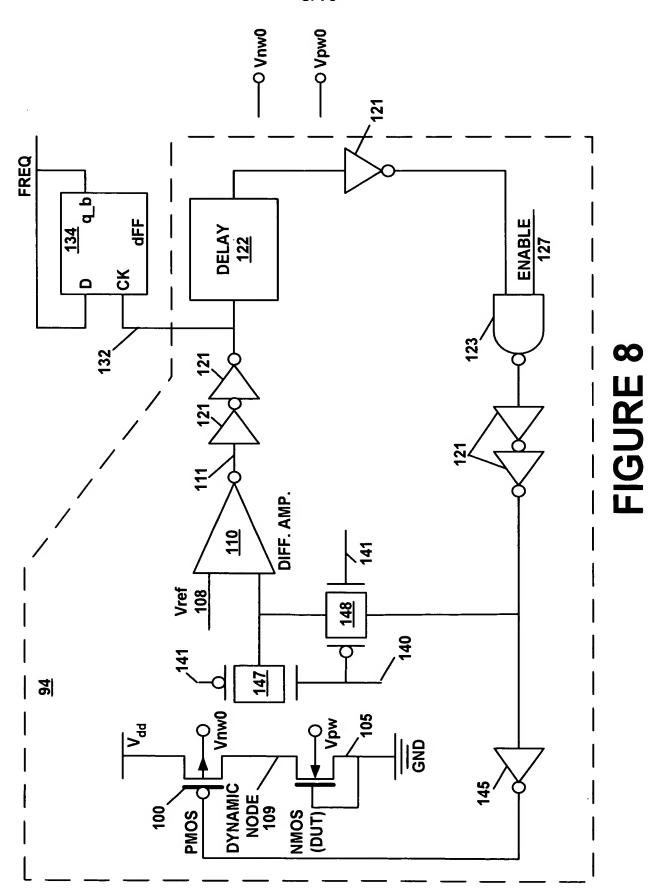
FIGURE 7

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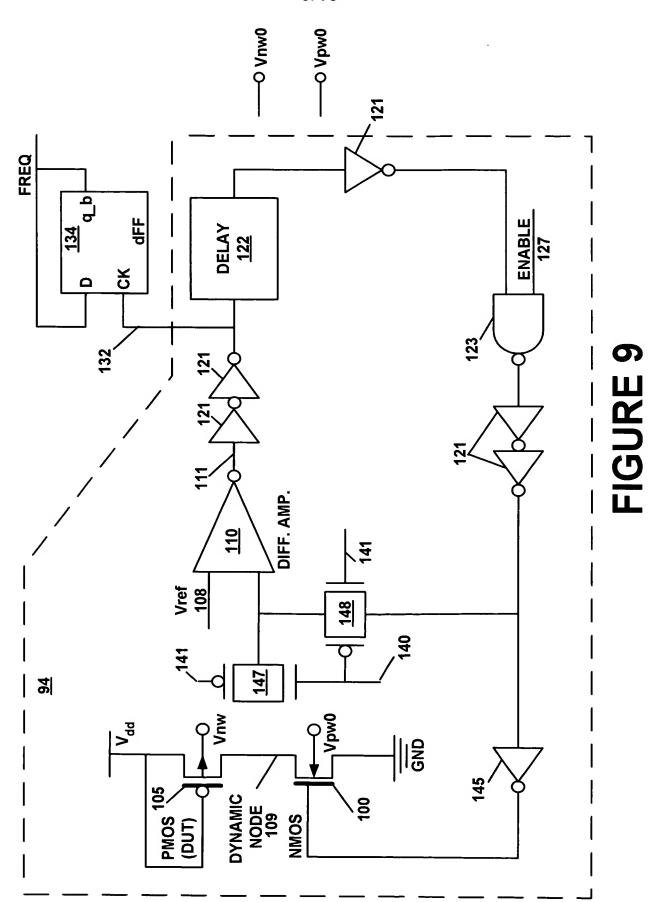


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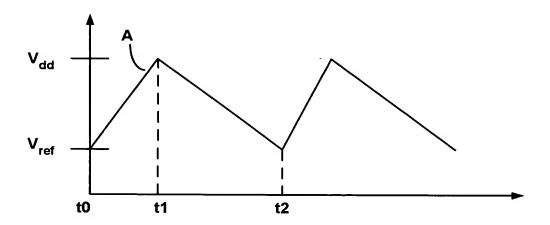


FIGURE 10A

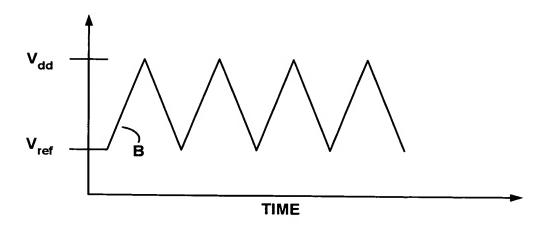


FIGURE 10B

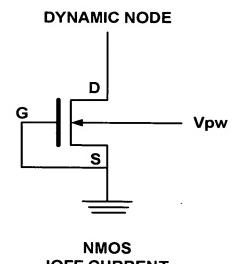
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Inventor (s): Shingo Suzuki

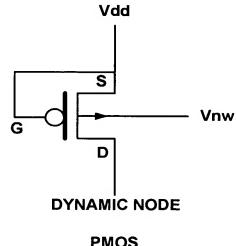
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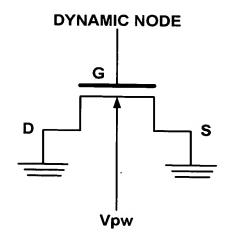
IOFF CURRENT

PMOS IOFF CURRENT

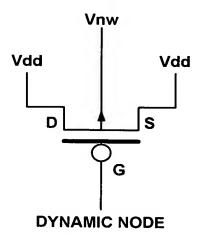
FIGURE 11

FIGURE 12

206



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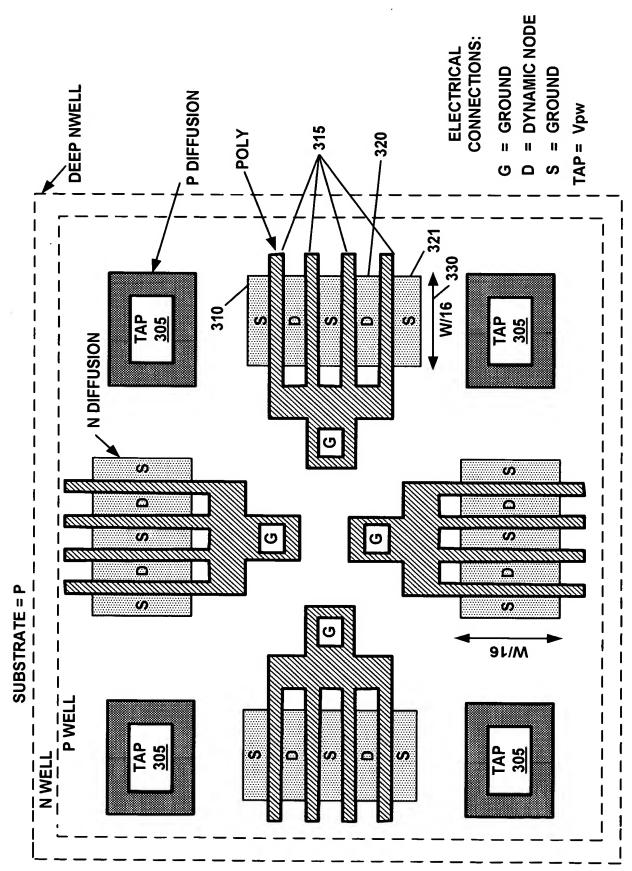
NMOS GATE LEAKAGE CURRENT

PMOS GATE LEAKAGE CURRENT

FIGURE 13

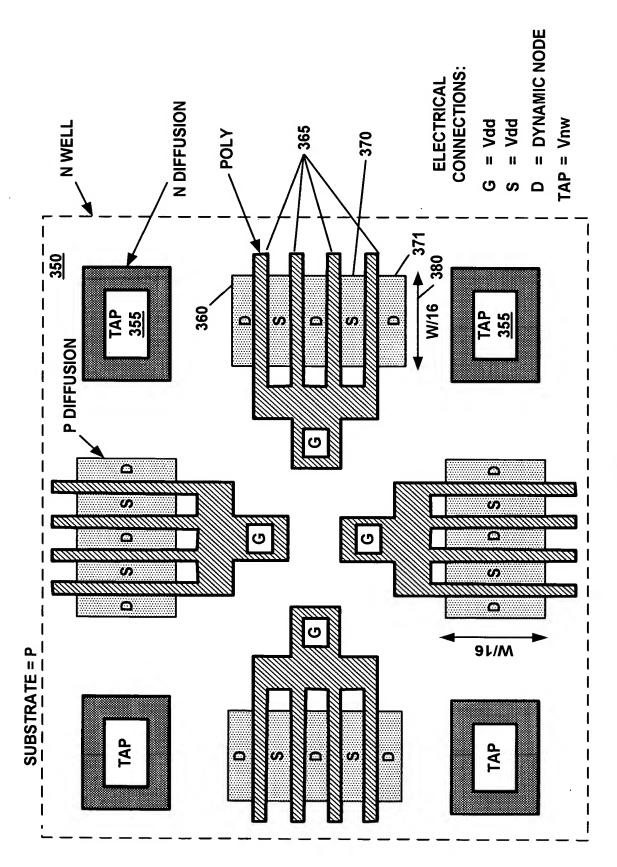
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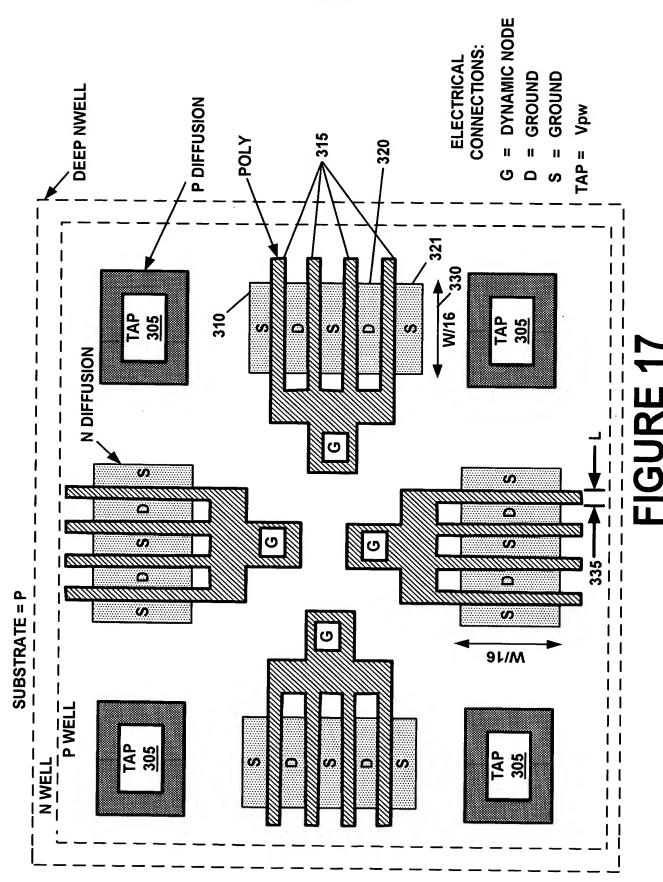


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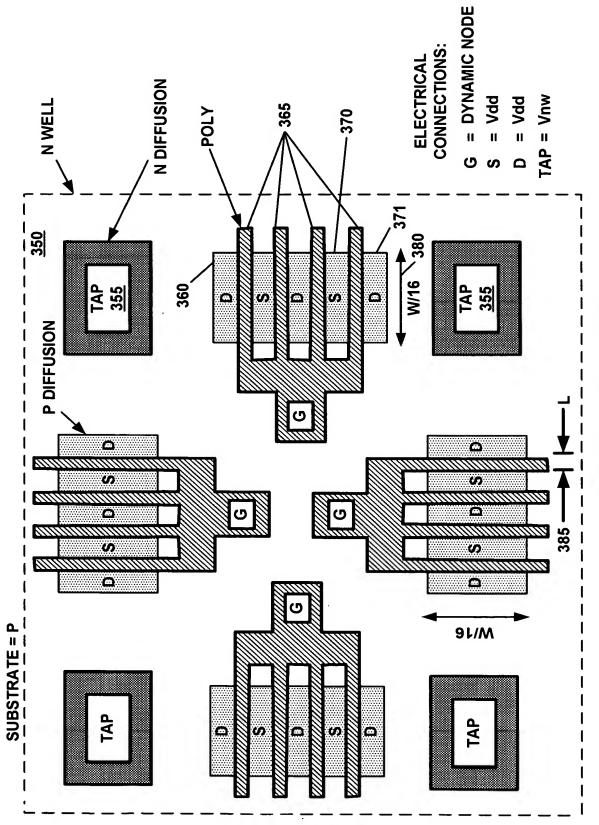


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